

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**REPLY BRIEF**

Applicant:	Eickemeyer, <i>et al.</i>	Docket No.:	ROC920020128US1
Serial No.:	10/717,747	Group Art Unit:	2183
Filed:	11/20/03	Examiner:	Johnson, Brian P
TITLE:	MULTITHREADED PROCESSOR AND METHOD FOR SWITCHING THREADS		

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir/Madam:

This reply brief is in response to the Examiner's Answer dated 10/16/2008.

## ARGUMENT

Appellant reaffirms the arguments in the Appeal Brief, and in addition offers the following arguments to address the Examiner's Answer. The cited art does not teach or suggest to combine the art in the manner claimed. Further, the Examiner's motivation to combine the cited art is not proper. It does not properly apply the KRS doctrine and is circular in reasoning.

In the Examiner's Answer, in the last paragraph of page 16, the Examiner characterizes the prior art as follows:

As it turns out, the swapping technique is known. In a typical multi-threaded system, this technique is done later down the pipeline with state data. State data is stored in a Main Register (analogous to the Primary Buffer). This Main Register always contains the state data for whichever tread is currently running. The processing system takes the data directly from this register.

In this statement, the Examiner characterizes that Doing teaches to perform data switching in a different location than the claimed invention. Doing teaches to perform data switching later in the pipeline and not instruction switching. Appellant asserts that one of ordinary skill in the art would combine the reference of Doing to the reference of Parody to perform data switching later down in the pipeline. This combination of Doing and Parody would not result in the claimed invention. The cited art in combination does not teach or suggest combining the art in the manner claimed. The Examiner's whole argument lacks any teaching or suggestion to make the change to the prior art in the manner claimed. There is no teaching to make the jump from data swapping to instruction swapping.

As discussed in the appeal brief. KSR does not support the Examiner's combination. In the Supreme Courts words, there was "good reason to pursue **known options**", (emphasis added). In KSR v. Teleflex, the patent that was found to be obvious combined the known option of a sensor on a gas pedal, with the known option of an

adjustable gas pedal with a fixed pivot. So in KSR, the combined elements of the prior art were both known to be options of a gas pedal. In this case, the second option the Examiner identifies was not known. The second option is a combination of the prior art that the Examiner only concludes would have been known. The Examiner's reasoning looks more like hindsight, where the Examiner uses the Appellant's application as a blueprint to supply the "known option" for the KSR analysis from a combination of the prior art. The Examiner has applied the KSR analysis beyond the manner described by the Supreme Court.

In the Examiner's Answer, in the middle of page 20, the Examiner discusses the Appellant's argument as follows:

The only difference is that Appellants' claimed invention is located in the fetch stage, where instructions are found in their initial form, rather than later pipeline stages, where instructions are found only in the form of state data. ... It follows that the state data swap, used to render the buffer instruction swap obvious, is a "known option" as discussed by the Supreme Court in KSR.

Even if that is the only difference of the claimed invention, there is no teaching or suggestion to make this change as discussed above. Even if there were a motivation to combine, one of ordinary skill in the art would not know to make the change to move the circuit to swap instructions. In KSR the known option was completely known. The known option was an option being used in the combination in the same manner as before. Here, the Examiner's "known option" is that one could take a swap mechanism and place it in the instruction circuit. This is adding to the known option. What is actually known was to have a swap mechanism later in the pipeline to swap data. The Examiner then magically changes this known option and makes it an option for swapping instructions. This is not a proper use of KSR. This does not establish a "good reason to pursue known options" as discussed in KSR.

The Examiner's stated motivation to combine is conclusory and circular in reasoning. In the Examiner's "Motivation for Prior Art Combination" section on page 23, the Examiner states:

Indeed, when a thread switch from Thread A occurs, there are two known options available – just two ways that the instructions of Thread B can be executed; one can either start executing from Buffer B or swap both buffers and continue executing from Buffer A.

This statement has several problems. First, the Examiner is not properly using KSR. The Examiner seems to think it is necessary to show that there are only two known options for solving a problem. That is not the issue. In fact, there may be many ways to proceed when a thread switch occurs. Second, and more important, the second "option" was not known. The Examiner is assuming an option was known by using a combination of the prior art to make up that option. The option of switching instruction threads was not known. That option is derived by the Examiner's a combination of the cited art. This is not what was done in KSR. The Examiner can not use a combination of the cited art to find the known option to argue there is motivation to make the combination. This is circular reasoning. The Examiner's stated motivation to combine requires the conclusion of the combination and thus is an invalid and circular argument.

This shows the weakness of the Examiner's argument and why it is different from KSR. The Supreme Court in KSR cited *Sakraida v. AG Pro, Inc.*, 425 U. S. 273 (1976), where the Court derived from the precedents the conclusion that when a patent simply arranges old elements with each performing the same function it had been known to perform, and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.*, at 282. In the present case, when the shadow registers of Parady are combined with Doing in the Examiner's combination, they do not perform the same function, in the same way, to produce a similar result as taught in the prior art. The swapping of data in the shadow registers taught by Parady does not perform the same function as the corresponding structure in the claimed invention and does not yield the same results. Swapping data in shadow registers is not the same function as performed

by the thread switch mechanism. The thread switch mechanism detects when the primary thread stalls, and in response thereto, swaps instructions stored in the first instruction buffer with instructions stored in the second instruction buffer. The shadow registers do not swap instructions so they are operating in a different way to produce a different result. Parady does not teach or suggest the invention as argued by the Examiner. The combined art does not perform the same function in the same way to provide a similar result. The Examiner has failed to establish a prima facie case. Appellant respectfully requests the examiner's rejection of claims under 35 U.S.C. §103(a) be reversed.

The Examiner goes on to argue about the inventor's motivation to combine in a section entitled "Motivation for Appellant's Combination". This section appears to be irrelevant. That the Examiner does not understand all the nuances of the invention and how they have some advantages over the prior art is not relevant. The inventor does not need to show a motivation to "combine" the prior art. The inventor solved a problem with a new combination of electrical circuits. Only the Examiner must show motivation to combine prior art to support a rejection of the invention's patentability.

The Examiner's evaluation of motivation to combine goes beyond basic patent principles and seems to show a prejudice to the invention. In the Examiner's "Motivation for Prior Art Combination" section, second paragraph on page 23, the Examiner states:

Simply because Appellant has chosen the more wasteful, but equally known option does not render Appellant's invention deserving of a patent.

The Examiner seems to imply a utility requirement here that is not based on patent law or requirements. While the Examiner stated previously that there was no utility rejection, this statement seems to reveal a prejudice not explicitly stated. Further, the Examiner seems to take the position that his own knowledge of the tradeoffs facing the inventor is superior. This is all biased opinion and irrelevant. Further, the solution was not equally known as discussed above.

## **CONCLUSION**

Claims 1-22 are addressed in this Appeal. For the numerous reasons articulated in the Appeal Brief and this Reply Brief, appellant maintains that the rejections of claims 1-22 are erroneous.

Appellant respectfully submits that the Appeal Brief and this Reply Brief fully respond to, and successfully contravene every ground of rejection, and respectfully requests that the final rejection be reversed and that all claims in the subject patent application be found allowable.

Respectfully submitted,

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